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# Factors influencing subjective recovery of people with recent-onset psychosis: A cross-sectional study in a low-income Sub-Saharan country

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ABSTRACT

People with psychosis were traditionally believed to have a chronic deteriorating condition with no hope of recovery. Recent studies have shown varied levels of recovery across countries. However, evidence from low-income, particularly African countries is scant. This study aimed to investigate levels of subjective recovery of people with recent-onset psychosis and identify its influencing factors. A cross-sectional study was conducted among 263 outpatients with recent-onset psychosis in a low-income country, Ethiopia. Psychiatric outpatients were randomly selected, and assessed by a set of questionnaires measuring their psychosocial, clinical and physical health conditions. Hierarchical multiple regression tests were used to identify factors influencing subjective recovery. The level of subjective recovery was found to be high, with a mean Questionnaire about the Process of Recovery score of 44.17. Individuals with higher quality of life were found to have significantly better subjective recovery level. Hopeless and centrally obese individuals were found to have significantly lower level of subjective recovery. Despite the limitations associated with a cross sectional study design, the results suggest that individuals with recent-onset psychosis in Ethiopia may have a better level of subjective recovery than those in high-income countries and their recovery is influenced by quality of life, hopelessness and central obesity.

## 1. Background

Serious mental illness (SMI) is used to describe a group of mental disorders characterized by severe symptoms and impaired functioning. These group of illnesses include psychotic, depressive and bipolar disorders (Bye and Partridge, 2004). Psychosis is defined as loss of contact with reality as manifested by delusions, hallucinations, lack of insight and behavioural abnormalities (Sadock and Sadock, 2011). Recent-onset psychosis is used to describe experiencing a psychotic disorder for up to 5 years (Breitborde et al., 2009; Crespo-Facorro et al., 2016). Previously, it was believed that people with severe mental illness could not recover, resulting in institutionalization and exclusion from the community. However, recent studies showed that positive outcomes (Jordan et al., 2017; Lally et al., 2017) including recovery are possible, and individuals with psychosis can live meaningful, productive and successful lives even while experiencing psychotic symptoms (Anthony, 1993; Davidson et al., 2008).

The two major types of recovery of concern to clinicians, researchers and service users with mental illness are clinical and subjective recovery. Clinical recovery is achieving remission from psychotic symptoms and a return to premorbid level of functioning. Whereas, subjective recovery relates to self-helping, embracing aspirations, looking beyond the limits of illness (Anthony, 1993; Deegan, 1996; Jacob, 2015), and living a self-directed, meaningful and satisfying life (Scottish Recovery Network, 2009). Our recent systematic review summarized the main concepts of subjective recovery in three themes: recovery as the outcome, recovery as a process and endeavours for recovery (Temesgen et al., 2018) indicating variations in the perceptions/understandings of subjective recovery.

Varied rates of recovery were reported in studies conducted across countries. A systematic review of 50 studies found that the median clinical recovery rate (improvement in both psychotic symptoms and functional/social domains) from schizophrenia over a two years period was 13.5%, while it was 13.0% for high-income countries and a much higher percentage of 36.4% for low and middle-income countries (Jaaskelainen et al., 2013). Cross-cultural studies and systematic reviews seem to concur that recovery rates (particularly clinical recovery) from psychosis are better in low and middle-income countries (LMICs) than in high-income countries (Isaac et al., 2007; Iyer et al., 2010; Myers, 2010). However, this understanding is debatable due to limited studies and non-representative samples with inconclusive and contrasting findings (Teferra et al., 2012, 2011).

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In addition to the healthcare and socio-economic development, several individuals and environmental related factors contributing to recovery from mental illness (particularly subjective recovery) have been identified. A systematic review on 10 quantitative and qualitative studies involving 298 individuals with recent-onset psychosis identified four categories of subjective recovery related factors, including treatment, illness, individual, and social environment factors (Temesgen et al., 2018). Symptom severity, particularly negative symptoms were the most reported predictor of subjective recovery. In terms of clinical characteristics, duration of illness, duration of untreated psychosis and substance use were most commonly reported predictors (Bourdeau et al., 2015; Lam et al., 2011; Liberman et al., 2002; Woodside et al., 2007). Other important factors of subjective recovery can include hope, meaning gained in life, self-empowerment, and personal development (Eisenstadt et al., 2012; Romano, 2009; Windell and Norman, 2013). Studies have also found that social support enhances both functional and subjective recovery, whereas stigmatization can hinder it (Lam et al., 2011; Romano, 2009; Windell and Norman, 2013). The evidence also indicates that females may have better subjective recovery rates than males; with possible reasons that females more often engage in social interaction, typically have a later age of onset and receive more support from family members/partners than males (Albert et al., 2011; Chang et al., 2012; Shibre et al., 2015; Verma et al., 2012).

The quality of life of people with serious mental illness (SMI) is affected by both their mental health problems and concurrent physical health problems (Yasamy et al., 2014). It is consistently shown that individuals with SMI have a lower life expectancy than their non-SMI counterparts (Bressington and White, 2015; Das-Munshi et al., 2016; Slade and Longden, 2015), with many premature deaths relating to cardio-metabolic health problems (Yasamy et al., 2014). Previous studies have also shown that the physical health conditions of individuals with SMI, particularly cardio-metabolic health problems are associated with a lower health-related quality of life (Bressington et al., 2016; Hasan, 2019), and this could potentially associate with subjective recovery level. However, the potential relationship between physical health and subjective recovery in people with SMI has not been well established to date.

While there is a lack of understanding about recovery from recent-onset psychosis worldwide, particularly in developing countries, limited existing evidence highlights a possibility of varied levels of SMI outcomes and different predictors of recovery across countries in terms of their socio-economic development level (Iyer et al., 2010; Menezes et al., 2006; Myers, 2010). Hence, research on subjective recovery from recent-onset psychosis in developing countries is essential to better understand and meet the social and clinical demands and develop evidence-based recovery-oriented services. Therefore, this study aimed to investigate levels of subjective recovery of people with recent-onset psychosis on outpatient treatment in a developing country and identify its associated factors.

## 2. Methods

### 2.1. Study settings and design

This cross-sectional study was conducted in the psychiatric outpatient departments of three tertiary hospitals in a low-income Sub-Saharan African country, Ethiopia. The study hospitals have a catchment population of about 15 million (i.e., 15% of the total population of the country) and are located in North-Western Ethiopia (Federal Democratic Republic of Ethiopia Ministry of Health, 2015). Over 25 million people are estimated to have mental health problems in Ethiopia. However, over 90% of people with severe mental health problems are not receiving modern mental health care because most of the population relies on traditional and religious healing practices (Alem et al., 2009; Ayano, 2016; Fekadu and Thornicroft, 2014).

### 2.2. Study participants

The study participants were people with recent-onset psychosis (less than 5 years of illness) (Breitborde et al., 2009) attending psychiatric follow-ups in the selected hospitals. Service users were eligible for the study if they were: (a) diagnosed with psychotic disorders (schizophrenia spectrum and other psychotic disorders) according to the Diagnostic and Statistical Manual (DSM-5); (American Psychiatric Association, 2013) as shown in their medical records; (b) mentally stable to communicate and comprehend questions; (c) able to communicate in Amharic, the local language; d) aged 16 years and over. Service users with severe physical or mental health problems needing acute care, organic brain syndrome, and cognitive impairments were excluded.

The sample size was determined using a rule-of-thumb method considering 15 participants for each of 17 potential predictor variables (Stevens, 2009) to be included in the multiple regression, resulting in a minimum sample of 255. The predictor variables were identified from a systematic review conducted prior to this survey (Temesgen et al., 2018)). For the sampling procedure, the potentially eligible service users were first identified from the hospital records by checking their diagnosis, duration of illness and age. The required number of participants from each hospital was then calculated by proportionally distributing the number of eligible individuals in each hospital. Each eligible participant was given a unique identification number and a list of computer-generated random numbers was produced using IBM, SPSS for Windows software (Armonk, 2015). Participants were then approached in accordance with this list by a trained psychiatric nurse for their consent to take part.

### 2.3. Measures

A set of instruments measuring subjective recovery, in addition to demographic characteristics, psychosocial characteristics, clinical and physical health conditions of the participants were used in this study. These variables were chosen because previous studies have shown that they are associated with different levels of recovery as summarized in our earlier systematic review (Temesgen et al., 2018). The instruments measuring these variables were selected for their appropriateness to measure the targeted variables and availability of the validated versions to Ethiopian. Most of these instruments were already validated for use with Ethiopian people, however three instruments (the QPR, ISMI and SSQ6) required translation and validation for this study.

These three instruments were first translated to the local language, Amharic, by a bilingual professional in mental health and back translated by another bilingual health professional. The two English versions (original and back translated) were compared for semantic equivalence by a native English speaker and professional in mental health. Six mental health professionals who spoke Amharic also appraised the appropriateness of the translation and rated for content validity. Scale Content Validity Index Averages (SCVI-Av) were calculated by dividing the number of items ranked relevant to a total number of items rated for relevance as suggested by Polit and Beck (2006). Test-retest reliability (over two weeks), internal consistency and concurrent validity were assessed with 60 participants having similar characteristics to participants in the current study. Their reliability and validity test results are summarized below.

#### 2.3.1. Subjective recovery

The Questionnaire about the Process of Recovery (QPR) was developed to assess individuals' subjective recovery level from mental illness (Neil et al., 2009). The 22 items QPR was shortened to15 items and were found to be more valid and reliable than the original version (Law et al., 2014; Law et al., 2016). The Amharic version of QPR found to have content validity (SCVI-Av = 0.85), test-retest reliability (intra-class correlation coefficient (ICC) = 0.71), internal consistency

(Cronbach's $\alpha = 0.95$) and concurrent validity with the hopelessness scale ($r = 0.63$) when piloted prior to this survey. A higher score of QPR indicates a higher level of subjective recovery.

#### 2.3.2. Quality of life

The World Health Organization quality of life short version (WHOQOL-BREF) is a 26 item measure used to assess quality of life, and which has been validated in different languages (World Health Organization, 1996) including Amharic (Lambert, 2014). The Amharic version of WHOQOL-BREF showed good item internal consistency (Cronbach's $\alpha = 0.85$) in a previous study (Lambert, 2014). A higher score of QHOQOL-BREF indicates a better quality of life.

#### 2.3.3. Hopelessness

The Beck's Hopelessness Scale (BHS) is a 20 true/false item scale to measure hopelessness (Beck et al., 1974). An earlier study demonstrated the Amharic version has satisfactory concurrent validity with the Brief Psychiatric Rating Scale-Expanded version (BPRS-E) at $P < 0.001$, and good item-total correlation coefficients ranging from 0.27 to 0.73 (Bekry, 2008). A higher score of BHS indicates more hopelessness.

#### 2.3.4. Level of disability

World Health Organization Disability Assessment Schedule (WHODAS) is a tool to assess health and disability status of individuals with any disease (Üstün et al., 2010). Previous studies show that the Amharic version of the 12 item WHODAS demonstrated good convergent validity with BPRS-E ($r = 0.52$) and excellent internal consistency ($\alpha = 0.98$) for individuals with schizophrenia (Habtamu et al., 2017, 2016). A higher level of WHODAS 2.0 indicates a higher level of disability.

#### 2.3.5. Psychotic symptoms

The Positive and Negative Syndrome Scale (PANSS) is a 30-items measure to assess the severity of psychotic symptoms in three subscales; positive symptoms, negative symptoms and general psychopathology (Kay et al., 1987). The scale demonstrated good concurrent validity with the BPRS ($r = 0.84$), inter-rater reliability ($r = 0.91$), internal consistency of positive, negative, and general scales were ($\alpha = 0.74$, 0.69, and 0.64 respectively) (Bell et al., 1992) and inter-rater reliability (ICC (*P*-value) = 0.985 (<0.001)). PANSS has been widely used in different studies in Ethiopia (Fekadu et al., 2013; Shibre et al., 2010, 2015). A higher score of PANSS is an indicator for a more severe psychotic symptom level.

#### 2.3.6. Internalized stigma

Internalized Stigma in Mental Illness (ISMI) was developed to measure the subjective experiences of stigma by Ritshera et al. (2003). For the current study, the nine-item ISMI scale was validated for use; and showed acceptable Cronbach's $\alpha = 0.74$, ICC = 0.74 and $r = 0.55$ with the hopelessness scale as piloted prior to this survey. A higher score ISMI indicated higher level of internalized stigma.

#### 2.3.7. Social support

The 6-item short version Social Support Questionnaire (SSQ6) was developed to determine the number of people involved in providing support and to measure the level of satisfaction with the support (Sarason et al., 1987). The Amharic version of it showed good content validity, test-retest reliability and internal consistency (SCVI-Ave = 0.91, ICC $P = 0.001$ and Cronbach's $\alpha = 0.92$ respectively) as piloted prior to this survey. Higher scores on the SSQ6 indicate a higher number of supporters and a higher degree of satisfaction with the support.

### 2.4. Ethical considerations

Ethical approval to conduct the study was obtained from the Human Subjects Research Ethics Sub-Committee of The Hong Kong Polytechnic University (Ref No: HSEARS20170808001), and the respective study institutions in Ethiopia. Written informed consent was obtained from individual participants and parents/legal guardians for individuals under 18 years old after full explanation of the objective and procedures of the study by the data collectors. Participants were informed that their participation was entirely voluntary and that they could withdraw from the study without needing to give a reason and without any penalty. Confidentiality of the personal identity of the participants was assured by using anonymous codes and by storing the data securely.

### 2.5. Data collection

Data were collected from patient hospital charts/records (some demographic, clinical and treatment characteristics including DUP and duration of illness) and face-to-face interviews were carried out by registered psychiatric nurses working in the units at the study hospitals. Because of the low literacy rate in the study population, all scales were administered by face-to-face interviews. A full day's training was given to data collectors by a psychiatrist and the principal investigator about taking informed consent, interviewing and scoring the scales. Most of the research instruments used only required the data collectors to read out the questions for the participants' self-rating. The one-day training was mainly focused on the rating method and procedure of the PANSS, following a set of standard instructions and guidelines. The data collectors who had experienced in this topic of research and observed the use of the PANSS in clinical areas by mental health researchers had adequate time to prepare and pre-read the PANSS materials before training. In addition, the psychiatrist trainer and the Principal Investigator were present at the study sites to answer questions about the PANSS or any other queries related to the study. Inter-rater-reliability was also established.

### 2.6. Data analysis

Data entry, cleaning, coding and analysis were performed using IBM, SPSS for Windows, version-23 (Armonk, 2015). Definitions for normal and abnormal test results of the physical health were interpreted as per WHO's recommendations (World Health Organization, 2013).

**Blood pressure:** Normotensive: systolic BP < 120 mmHg and diastolic BP < 80 mmHg), Pre-hypertension: systolic BP 120–139 mmHg or diastolic BP 80–89 mmHg) and Hypertension: systolic BP ≥ 140 mmHg or diastolic BP ≥ 90 mmHg)

**Weight:** Underweight: BMI <18.5 kg/m$^2$, Normal weight: BMI 18.5–24.9 kg/m$^2$, Overweight: BMI 25.0–29.9 kg/m$^2$ and Obese: BMI ≥ 30.0).

**Centrally obese**: waist-hip ratio (WHR) ≥0.95 for men and 0.85 for women.

To identify significant predictors for subjective recovery and determine the independent contributions of each group of variables, hierarchical multiple regression test was applied (Petrocelli, 2003). Several important predictors of recovery and factors associated with recovery are reported in the previous studies (Bourdeau et al., 2015; Lam et al., 2011; Norman et al., 2013; Temesgen et al., 2018), these variables were grouped in temporal precedence and entered into the regression models accordingly. Therefore, sociodemographic and substance use variables were entered in the first model followed by physical health states and finally psychosocial variables. In each block, "Enter method" was used for regression tests. When checked for the assumptions of regression tests, the dependent variable (QPR) was in the acceptable ranges for normality (Skewness = −0.218 and Kurtosis

1.63), according to Stevens (2009) and Tabachnick and Fidel (2007). There was no multicollinearity between predictor variables included in the regression model (VIF ranges from 1.08 to 2.38). Seven outliers were identified (by looking at the standardized values (three and above) and visualizing extreme values) and were deleted. The total scores of all the measures were used for regression where appropriate (i.e. BHS, ISMI, WHODAS and WHOQOL). However, the subscales/domains of the PANSS and the SSQ6 were inserted in the regression due to the reported independencies of the subscales/domains (Best et al., 2016; Fekadu et al., 2013; Mortimer, 2007; Shibre et al., 2010). There were no missing data for the dependent variable, but there were 21 missing data for independent variables and these cases were excluded case-wise from the regression tests. Dummy dichotomous variables were generated for the categorical variables such as gender, substance use, weight status, and central obesity.

## 3. Results

From the three hospitals, 1195 eligible participants with recent-onset psychosis were identified; and 270 were randomly selected. Seven did not participate in the study; they either refused to give written consent ($n = 5$) or withdrew participation during the interview ($n = 2$); hence 263 individuals with recent-onset psychosis were finally involved in the study (a response rate of 97.4%). One hundred and forty-five (55.1%) of the participants were male. The mean age was 29.58 (SD = 9.11) years. About two-thirds (61.7%) of the participants were urban dwellers and over three-quarters (77.2%) were Orthodox Christian in their religion. Only 21.7% of the participants were unemployed, while others either had a regular job or were in study. Percentages of self-reported substance use were low, 5.3% smoked cigarettes, 9.9% drank alcohol and 8.7% used Khat (a stimulant plant commonly consumed in East Africa).

More than half of the participants (54.0%) were diagnosed with schizophrenia, followed by schizoaffective disorder (21.3%). Most of the participants (78.5%) were taking typical antipsychotics, while nearly half (45.2%) had a history of psychiatric inpatient admission. The duration of untreated psychosis (DUP) and duration of illness ranged from one day to five years with a mean and median of 7.61 (SD = 11.6) and 3.0 (SD = 11.59) months for DUP and 22.84 (SD = 6.87) and 18.00 (SD = 16.87) months for the duration of illness respectively.

One-fifth (20.7%) of the participants were found to be hypertensive. The prevalence of overweight and obesity (as measured by BMI) were 15.6% and 2.3% respectively. Among 251 participants, 109 (42.2%) were found to be centrally obese based on their waist-to-hip circumferences ratio as defined by the WHO (World Health Organization, 2013). Details of the socio-demographic and clinical characteristics of the participants are presented in Table 1.

The subjective recovery, functional, psychosocial and clinical components were also assessed and summarized in Table 2. Mean score of the participants' subjective recovery (QPR) was 44.17 (SD = 5.76) with a 95% CI = (43.47–44.87). The overall mean psychotic symptom level was found to be low i.e. 37.6 (SD = 8.5). A wide-ranging hopelessness score was found (0 to 18), with a mean of 3.23 (SD = 3.88). Satisfaction with the social support they had was found to be high with a mean score of 30.98 (SD = 7.49). Participants had a moderate mean internalized stigma score of 2.12 (SD = 0.44). The quality of life of the study participants was found to be good with the overall mean score of 3.24 (SD = 0.52) while the highest quality of life (QoL) score was recorded for the physical domain (3.49, SD = 0.72).

Results of hierarchical regression test, presented in Table 3, indicated that the test was significant at $F(17, 207) = 12.13$, $P < 0.001$) in the final regression test model with adjusted $R^2 = 0.458$; however, the tests were not significant for the first ($P = 0.31$) and second ($P = 0.46$) model tests. Hence, 45.8% of participants' level of subjective recovery was predicted by the variables in the model. The three

**Table 1**
Sociodemographic and clinical characteristics.

| Variable | Category | Freq *n*(%) |
|---|---|---|
| Gender ($N = 263$) | Male | 145(55.1) |
| | Female | 118(44.9) |
| Residence ($N = 261$) | Urban | 161 (61.7) |
| | Rural | 100(38.0) |
| Marital Status ($N = 263$) | Single | 149 (56.7) |
| | Married | 73(27.8) |
| | Divorced/Widowed | 41 (15.5) |
| Education Level ($N = 263$) | Illiterate | 62 (23.6) |
| | Primary school | 57 (21.7) |
| | Secondary school | 75 (28.5) |
| | College diploma and above | 69 (26.2) |
| Religion ($N = 263$) | Orthodox Christian | 203 (77.2) |
| | Muslim | 50 (19.0) |
| | Protestant Christian | 10 (3.8) |
| Occupation ($N = 263$) | None | 57 (21.7) |
| | Student | 53 (20.2) |
| | Have regular work (Employed or private work) | 153 (58.2) |
| Living with ($N = 260$) | Parents | 143 (54.4) |
| | Spouse | 66 (25.4) |
| | Alone | 29 (11.0) |
| | Other | 22 (8.4) |
| Number of family members living with participants ($N = 252$) | [1–3] | 93(35.4) |
| | [4–6] | 108(41.1) |
| | 7 and above | 51(19.8) |
| Smoke Cigarette ($N = 262$) | Yes | 14 (5.3) |
| | No | 248 (94.7) |
| Drink Alcohol ($N = 263$) | Yes | 26 (9.9) |
| | No | 237 (90.1) |
| Chew Khat ($N = 262$) | Yes | 23 (8.7) |
| | No | 239 (90.9) |
| Other Drugs ($N = 263$) | Yes | 4 (1.4) |
| | No | 259 (98.5) |
| Psychiatric Diagnosis ($N = 263$) | Schizophrenia | 142(54.0) |
| | Schizoaffective | 56(21.3) |
| | Other specified schizophrenia spectrum and other psychotic | 16(6.1) |
| | Schizophreniform | 12(4.6) |
| | Brief psychotic | 10(3.8) |
| | Substance induced psychosis | 10(3.8) |
| | Unspecified schizophrenia spectrum and other psychotic | 9(3.4) |
| | Delusional Disorder | 4(1.5) |
| | Psychotic disorder due to another medical condition | 3(1.1) |
| | Catatonia | 1(0.1) |
| Group of antipsychotics ($N = 261$) | Typical | 250 (78.5) |
| | Atypical | 56 (21.5) |
| History of admission for mental illness ($N = 263$) | Yes | 119 (45.2) |
| | No | 144(54.8) |
| Blood Pressure ($N = 246$) | Normal | 186(75.6) |
| | Pre-hypertensive | 9(3.7) |
| | Hypertensive | 51(20.7) |
| BMI ($N = 258$) | Underweight | 45(17.4) |
| | Normal weight | 166 (64.3) |
| | Overweight | 41(15.6) |
| | Obese | 6 (2.3) |
| Waist-to-Hip Ratio ($N = 258$) | Normal | 149 (57.8) |
| | Centrally obese | 109 (42.2) |
| | Mean | Std. deviation |
| Age ($N = 259$) | 29.58 | 9.11 |
| Duration with illness in Months ($N = 260$) | 22.84 | 16.87 |
| Family Monthly Income in Birr* ($N = 246$) | 2012.25 | 2141.56 |
| Pulse Rate ($N = 246$) | 73.39 | 10.66 |

* 1 USD = 27.5 Ethiopian birr.

**Table 2**
Subjective recovery, functional, psychosocial and clinical characteristics and their correlations with the subjective recovery.

| Variable | Mean | Std. deviation | Correlation with QPR | |
|---|---|---|---|---|
| | | | *r* | *P* |
| QPR (*N* = 263) | 44.17 | 5.76 | 1 | – |
| PANSS Overall (*N* = 261) | 37.61 | 8.50 | −0.305 | <0.001 |
| • PANSS-Positive | 8.91 | 2.70 | −0.170 | 0.01 |
| • PANS-Negative | 9.42 | 3.30 | −0.281 | <0.001 |
| • PANS General Psychology | 19.28 | 4.08 | −0.293 | <0.001 |
| BHS (*N* = 260) | 3.23 | 3.88 | | <0.001 |
| SSQ6 Overall (*N* = 263) | 42.34 | 12.91 | 0.180 | 0.001 |
| • SSQ6 number of supporters | 11.71 | 7.26 | 0.97 | 0.12 |
| • SSQ6 satisfaction | 30.98 | 7.49 | 0.288 | <0.001 |
| ISMI(*N* = 261) | 2.12 | 0.45 | −0.378 | <0.001 |
| WHODAS (*N* = 262) | 20.23 | 9.34 | −0.421 | <0.001 |
| WHOQOL overall (*N* = 261) | 3.24 | 0.52 | 0.579 | <0.001 |
| • QOL-Physical | 3.49 | 0.72 | 0.344 | <0.001 |
| • QOL-Psychological | 3.35 | 0.57 | 0.498 | <0.001 |
| • QOL-Social | 3.05 | 0.71 | 0.513 | <0.001 |
| • QOL-Environmental | 3.02 | 0.59 | 0.519 | <0.001 |
| DUP in Months (*N* = 260) | 7.61 | 11.59 | −0.193 | 0.001 |

QPR: Questionnaire about the Process of Recovery, PANSS: Positive and Negative Syndrome Scale, BHS: Beck's Hopelessness Scale, SSQ6: Social Support Questionnaire with six item, ISMI: Internalized Stigma for Mental Illness, WHODAS 2.0: World Health Organizations Disability Assessment Schedule, WHOQOL: World Health Organization Quality of Life, DUP: Duration of Untreated Psychosis.

significant predictors: quality of life (unstandardized *B* coefficient = 4.15 (95% CI = 2.51, 5.64), $P < 0.001$), hopelessness (unstandardized *B* coefficient = −0.34 (95% CI = −0.51, −0.14), $P = 0.001$) and waist-to-hip ratio (unstandardized *B* coefficient = −1.53 (95% CI = −2.75, −0.31), $P = 0.014$) alone explained 41.1% of the dependent variable (QPR). Subjective recovery is most predicted by participants' quality of life (standardized $\beta$ coefficient = 0.40) followed by hopelessness and central obesity (standardized $\beta$ coefficient = −0.25 and −0.16, respectively). From the model summary results, it was observed that demographic and physical health variables account for very low variances in subjective recovery scores.

## 4. Discussion

This study assessed the level of subjective recovery from recent-onset psychosis and identified its predictive factors in a group of Ethiopian psychiatric outpatients. Recovery from mental illness is multifaceted, incorporating the symptomatic, social, functional and subjective components. The recovery level of the current study participants was found to be higher than those reported from Western countries. Although direct comparisons between high-income Western countries and a low-income African country are problematic due to great variations in culture, perceptions of illness, expectations of treatment outcomes and health care systems (Balaji et al., 2012). In the current study the level of subjective recovery (mean = 44.17, possible range 0–60) was greater than that reported in UK studies in which their adjusted mean scores were 32.47 (Law et al., 2016), 35.13 (Law et al., 2014) and 28.8 (Morrison et al., 2014) according to the original QPR scoring method. The participants in the UK studies were also more hopeless (mean BHS = 8.49) in (Law et al., 2016); and 9.17 in (Law et al., 2014) than the Ethiopian service users in the current study (mean BHS = 3.23). The quality of life scores of the participants in this study was found to be similar to other long-term mental and physical illnesses, but lower than the general population in studies conducted in Ethiopia (Lambert, 2014; Tegegne, 2014; Tesfaye et al., 2016).

The symptom severity of service users with psychosis in this study was low in comparison to those in previous studies conducted in Ethiopia and Europe. The overall PANSS score (mean = 37.61) of this study was almost half of the reported scores from Ethiopians (mean = 78) (Shibre et al., 2010) and Norwegians (mean = 70) (Larsen et al., 2004). All domains of PANSS scores in this study were less than a study conducted in the UK; e.g. PANSS-positive syndromes were 13.64 in UK study (Law et al., 2016) while it was 8.9 in the current study. These differences may be because the current study only included service users with stable psychotic symptoms who were well engaged in outpatient treatment, rather than those with acute levels of symptoms that would require admission to hospital, or those that may disengage with treatment due to inadequate symptom control and seek traditional healing practitioners.

Moreover, direct comparisons between these studies may not be appropriate due to variations in recruitment strategies, inclusion criteria, and scoring systems. For example, Morrison et al. (2014) included individuals with psychosis who withdrew from taking antipsychotics by themselves for at least 6 months but were still experiencing psychotic symptoms. Whereas, participants in Law et al. (2016) and Law et al. (2014) studies were recruited from different settings and not limited to the diagnosis of recent-onset psychosis. Participants in the study by Shibre et al. (2010) had a long duration of illness (mean = 13 years) as compared with the current study (mean duration of illness = 22.4 months). These variations could have an impact on recovery levels and therefore comparisons should be treated with caution.

Perhaps, this lower symptom severity, lower hopelessness and higher subjective recovery levels might suggest better recovery levels in low-income countries as reported in some earlier systematic reviews (Isaac et al., 2007; Jaaskelainen et al., 2013; Menezes et al., 2006). This may relate to contextual and social issues such as potential benefits from traditional and religious healing practices, and having less competitive/stressful lives, tighter social bonds, realistic goals (reasonable expectations from treatment), and a lower degree of urbanization in low-income countries than in high-income countries (Harrison et al., 2001; Iyer et al., 2011; Myers, 2010; Purgato et al., 2012). Our results provide some support for the hypothesis that people with psychosis in low-income countries have better levels of clinical, psychosocial and subjective recovery. However treatment coverage for people with mental illness in the study country is very low (Ayano, 2016; Fekadu and Thornicroft, 2014) indicating that the majority of Ethiopian individuals with early psychosis were not represented in this study. This gap needs to be addressed with more comparative and longitudinal studies incorporating individuals who do not engage in treatment.

The respondents in this study were found to have higher physical health problems compared with the general population in Ethiopia (Kibret and Mesfin, 2015). The prevalence of hypertension (20.7%) and overweight and obese BMI (17.9%) in the current study are nearly twice those of the general Ethiopian population with a similar mean age (BP = 11.4%; overweight and obese BMI = 11.4%) (Animaw and Seyoum, 2017). Similar disparities, of higher physical health problems than the general population, were also reported in systematic reviews (Bradshaw and Mairs, 2014; Foley and Morley, 2011). Individuals with psychosis have a higher risk of physical health problems due to sedentary lifestyles, iatrogenic effects of antipsychotics, poor nutritional practice and genetic factors, which ultimately result in a reduced life expectancy of up to three decades (Bradshaw and Mairs, 2014; Bressington et al., 2016).

### 4.1. Predictors of subjective recovery from psychosis

The hierarchical regression tests showed that the clusters of demographic, substance use and physical health variables in the first two models alone did not significantly predict subjective recovery. These variables also explained little variance ($R^2$ = 3%) in subjective recovery scores. This indicated that subjective recovery is mostly explained by psychosocial variables such as quality of life and hope.

Quality of life was the strongest predictor of subjective recovery in this study. Quality of life is a very broad concept touching almost every

**Table 3**
Multiple linear regression test (A: model summary, B: ANOVA, C: coefficients).

**A. Model summary**[a]

| Model | *R* | *R* Square | Adjusted *R* square | Std. error of the estimate |
|---|---|---|---|---|
| 1 | 0.146[b] | 0.021 | 0.004 | 4.843 |
| 2 | 0.174[c] | 0.030 | −0.001 | 4.855 |
| 3 | 0.706[d] | 0.499 | 0.458 | 3.573 |

B. ANOVA[a]

| Model | | Sum of squares | *df* | Mean square | *F* | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 112.920 | 4 | 28.230 | 1.203 | 0.310[b] |
| | Residual | 5161.720 | 220 | 23.462 | | |
| | Total | 5274.640 | 224 | | | |
| 2 | Regression | 158.804 | 7 | 22.686 | 0.962 | 0.460[c] |
| | Residual | 5115.836 | 217 | 23.575 | | |
| | Total | 5274.640 | 224 | | | |
| 3 | Regression | 2631.496 | 17 | 154.794 | 12.123 | 0.000[d] |
| | Residual | 2643.144 | 207 | 12.769 | | |
| | Total | 5274.640 | 224 | | | |

C. Coefficients[a]

| Model | | Unstandardized coefficients | | Standardized coefficients | *t* | Sig. |
|---|---|---|---|---|---|---|
| | | *B* | Std. Error | Beta | | |
| 1 | (Constant) | 44.854 | 0.455 | | 98.500 | 0.000 |
| | Gender | −0.805 | 0.650 | −0.083 | −1.239 | 0.217 |
| | Cigarette | −2.065 | 1.879 | −0.099 | −1.099 | 0.273 |
| | Alcohol | −1.007 | 1.253 | −0.062 | −0.804 | 0.423 |
| | Khat | 1.223 | 1.409 | 0.072 | 0.868 | 0.386 |
| 2 | (Constant) | 44.635 | 0.874 | | 51.083 | 0.000 |
| | Gender | −0.824 | 0.790 | −0.085 | −1.044 | 0.298 |
| | Cigarette | −1.987 | 1.894 | −0.096 | −1.049 | 0.295 |
| | Alcohol | −1.017 | 1.256 | −0.062 | −0.809 | 0.419 |
| | Khat | 1.349 | 1.417 | 0.079 | 0.952 | 0.342 |
| | Waist-to-hip ratio | −0.116 | 0.810 | −0.012 | −0.143 | 0.886 |
| | BP | 1.021 | 0.817 | 0.085 | 1.249 | 0.213 |
| | BMI | 0.353 | 0.837 | 0.029 | 0.422 | 0.674 |
| 3 | (Constant) | 33.885 | 3.869 | | 8.758 | 0.000 |
| | Gender | −0.410 | 0.619 | −0.042 | −0.662 | 0.509 |
| | Cigarette | −2.424 | 1.434 | −0.117 | −1.690 | 0.093 |
| | Alcohol | −0.844 | 0.942 | −0.052 | −0.896 | 0.371 |
| | Khat | 0.817 | 1.090 | 0.048 | 0.750 | 0.454 |
| | Waist-to-hip ratio | −1.530 | 0.620 | −0.156 | −2.467 | 0.014* |
| | BP | 0.559 | 0.615 | 0.047 | 0.909 | 0.365 |
| | BMI | −0.403 | 0.653 | −0.033 | −0.618 | 0.537 |
| | BHS | −0.326 | 0.094 | −0.246 | −3.483 | 0.001* |
| | WHOQOL | 4.093 | 0.784 | 0.396 | 5.220 | <0.001* |
| | WHODAS | −0.051 | 0.036 | −0.096 | −1.435 | 0.153 |
| | SSQ6-Satisfaction | 0.049 | 0.037 | 0.076 | 1.321 | 0.188 |
| | SSQ6-Number | −0.024 | 0.038 | −0.034 | −0.620 | 0.536 |
| | PANSS-Positive | 0.023 | 0.114 | 0.013 | 0.201 | 0.841 |
| | PANSS-Negative | −0.136 | 0.097 | −0.093 | −1.394 | 0.165 |
| | PANSS-General Psychopathology | 0.087 | 0.089 | 0.074 | 0.979 | 0.329 |
| | DUP | −0.033 | 0.021 | −0.081 | −1.558 | 0.121 |
| | ISMI | −0.560 | 0.723 | −0.049 | −0.774 | 0.440 |

[a] Dependent variable: QPR (subjective recovery).
[b] Predictors: (Constant), Gender, Khat, Alcohol, Cigarette.
[c] Predictors: (Constant), Khat, Gender, Alcohol, Cigarette, BMI, BP, Waist to Hip ratio.
[d] Predictors: (Constant), Khat, Gender, Alcohol, Cigarette, BMI, BP, Waist to Hip ratio, DUP, SSQ6 Number, SSQ6 Satisfaction, PANSS-N, WHODAS, ISMI, PANSS-Positive, BHS, PANSS-General Psychology, WHOQOL.
* Significant predictor.

dimension/components of human life and it is therefore perhaps logical that someone with a poor quality of life would also have a low subjective recovery level. Despite this logic, some researchers have hypothesized that improved rates of subjective recovery in people with early psychosis may lead to a reduced quality of life due to distress resulting from having more insight into the illness and a greater awareness of the challenges of living with a SMI in the future (Buck et al., 2013; Hasson-Ohayon et al., 2009). However, some cross-sectional studies have found a direct positive relationship between subjective recovery and quality of life in people with schizophrenia (Kukla et al., 2014). Other studies in people with recent-onset psychosis, though qualitative in their design, also found that meaning and satisfaction in life (Lam et al., 2011; Romano, 2009), perception of role, involvement/engagement in the society and personal capacity (Connell et al., 2015; Eisenstadt et al., 2012; Windell et al., 2012) were believed to be important influences on subjective recovery from recent-onset

psychosis. Indeed, some researchers have attempted to defined/measured subjective recovery from the quality of life perspective (Roe et al., 2011). Nevertheless, these instruments measure different constructs, QOL is very broad measuring the perceived physical, social, environmental, psychological wellbeing (World Health Organization, 1996), whereas subjective recovery is more about how an individual feels in overcoming the illness he had/is having (Neil et al., 2009).

The current study also revealed hope was the second most important predictor of subjective recovery; the more hopeless the service users were the less subjective recovery they had. This finding seems to concur with some earlier studies conducted in western countries showing that inner strength and hope of future prospects are related to better levels of subjective recovery (Anthony, 2000; Eisenstadt et al., 2012; Slade and Longden, 2015; Vass et al., 2015).

Individuals with recent-onset psychosis, as discussed earlier, have higher physical health problems than the general population. Among these problems, central-obesity was found to be the third most significant predictor of subjective recovery in the current study. This is an important and novel finding because although some qualitative studies have reported that good physical health is identified as an important treatment goal by people with first-episode psychosis (Ramsey et al., 2011), no previous studies have identified this direct association with quantitative data. The relationship between central-obesity and subjective recovery may be explained by the fact that being obese results in less social engagement, perpetuates stigma and damages self-esteem, all of which can negatively impact upon levels of subjective recovery (Oh et al., 2017). Indeed, these physical health problems not only predict subjective recovery, but also the main causes of early deaths for people with SMI (Bressington and White, 2015; Das-Munshi et al., 2016; Yasamy et al., 2014). Despite their potentially devastating consequences the physical health concerns of people with SMI are not given due emphasis, often because mental health professionals' overlook physical health because they are preoccupied with mental health related issues (Coyne and Schwenk, 1997; World Health Organization, 2008; Bressington et al., 2018a). This is a potentially important shortfall in promoting recovery from mental illness because previous studies have reported that improvements in physical health are associated with enhanced mental health related quality of life (Bressington et al., 2018b, Kolotkin et al., 2008). Therefore, the results of the current study and previous research seem to highlight the need to adopt a more holistic approach, as emphasized in a guide by Mental Health Commission of NSW (2016) which strongly supports the integration of physical health care components within recovery-oriented psychiatric services in order to enhance recovery.

### 4.2. Study limitations

This cross-sectional quantitative survey has a number of limitations that are worthy of consideration. The sample is representative only to stable outpatients engaged in treatment with relatively low levels of substance misuse, and hence the results cannot be generalized to all people with recent-onset psychosis in Ethiopia as many do not receive treatment. The study mostly relies on self-report data such as substance misuse and duration of untreated psychosis, which is prone to recall bias and other reporting errors. The data collectors were also nurses working at the study hospitals, which could have introduced a degree of social desirability bias because participants may have reported responses they felt would be viewed favourably. The instruments used in this study were originally developed for western populations and the validations for Ethiopians were done for the basic components only. We have also reported data from a cross-sectional survey, which makes it impossible to demonstrate cause-and-effect and capture the nonlinear nature of recovery from psychosis and potential variations in predictive factors over time. Finally, the sole use of quantitative measures in this study could be viewed as an additional limitation because the individualistic nature of subjective recovery may be better suited to qualitative exploration.

### 4.3. Conclusions and recommendations

The critical evidence gap about recovery from psychosis in low-income countries cannot be addressed by this cross-sectional study alone. Longitudinal studies with a mixed-methods (quantitative and qualitative) study design involving participants from different settings are required to have a more comprehensive understanding. Although there are concerns about representativeness, the levels of both clinical and subjective recovery appear to be better when compared to previous studies conducted in developed countries. This strengthens previous reports indicating better rates of recovery in low-income countries. Overall, the findings suggest that improving quality of life, boosting hope and maintaining a healthy physical health state might enhance subjective recovery in Ethiopian people with recent-onset psychosis who are engaged in community treatment.

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